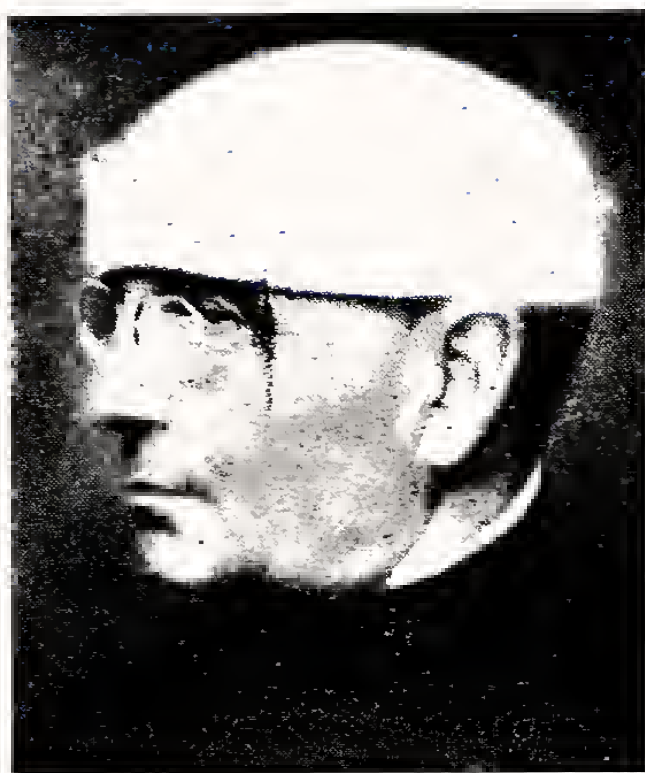


PELICAN
BOOKS

**MAN,
THE UNKNOWN**
ALEXIS CARREL



One shilling and sixpence



THE AUTHOR

DR ALEXIS CARREL was born in France, near Lyons, in 1873, and took his doctor's degree in that city, as well as a degree in science at Dijon. After studying and teaching in Lyons for some years, he went to the United States in 1905 to join the staff of the Rockefeller Institute of Medical Research in New York, remaining there for nearly thirty years until his retirement and return to France in 1939. On his return to his native country he was engaged on a special war mission for the French Ministry of Public Health, a fitting sequel to his work during the first World War, when he served as a surgeon with the French forces, and received honours not only from his own, but also from the American and British Governments.

Dr Carrel was awarded a Nobel Prize in 1912 for his work in suturing bloodvessels and the transplantation of organs, and after his retirement in 1939 he worked on a so-called 'mechanical heart', which it was claimed would enable organs separated from the parent body to 'live' for indefinite periods.

Man the Unknown, his best-known and most popular book, was received with acclamation on its first publication and has been repeatedly reprinted: it sums up much of his experience of man and his life seen from the purely scientific aspect. He died in Paris in November 1944.

Awaiting trial for NAZI COLLABORATION!

ABOUT THIS BOOK

The author of this very original book was a scientist who worked in the famous Rockefeller Institute of Medical Research. His studies of scientific knowledge convinced him that our civilisation is based on doubtful assumptions, and is pursuing mistaken ends, and in these pages he sets out to analyse the errors in modern thought and behaviour. He begins by assembling a brilliant synthesis of what the various sciences have discovered about the nature of man, and from this summing up he outlines the natural laws which mankind must follow if it is to be redeemed from the degeneracy of industrial civilisation. He concludes that 'humanity's attention must turn from the machines and the world of inanimate matter to the body and the soul of man,' and he claims that science provides the clues to a new conception of human progress. In this final chapter Dr Carrel confronts the challenging question: Can the 'science of man' lead to his renovation? and in affirming that it can he proposes modifications of our present way of life which will startle conventional thinkers. Even those readers who may not accept the revolutionary notions of this vigorous book will value the lucid synopsis it provides of the findings of science about the nature of man.

PELICAN BOOKS

MAN, THE UNKNOWN

BY

Alexis Carrel

(A181)

eugenics!

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PREFACE

THE AUTHOR of this book is not a philosopher. He is only a man of science. He spends a large part of his time in a laboratory studying living matter, and another part in the world, watching human beings and trying to understand them. He does not pretend to deal with things that lie outside the field of scientific observation.

In this book he has endeavoured to describe the known, and to separate it clearly from the plausible; also to recognize the existence of the unknown and the unknowable. He has considered man as the sum of the observations and experiences of all times and of all countries. But what he describes he has either seen with his own eyes or learned directly from those with whom he associates. It is his good fortune to be in a position to study, without making any effort or deserving any credit, the phenomena of life in their bewildering complexity. He has observed practically every form of human activity. He is acquainted with the poor and the rich, the sound and the diseased, the learned and the ignorant, the weak-minded, the insane, the shrewd, the criminal, etc. He knows farmers, proletarians, clerks, shopkeepers, financiers, manufacturers, politicians, statesmen, soldiers, professors, school-teachers, clergymen, peasants, bourgeois, and aristocrats. The circumstances of his life have led him across the path of philosophers, artists, poets, and scientists, and also of geniuses, heroes, and saints. At the same time, he has studied the hidden mechanisms which, in the depth of the tissues and in the immensity of the brain, are the substratum of organic and mental phenomena.

He is indebted to the techniques of modern civilization for the possibility of witnessing such a gigantic spectacle. These techniques have enabled him simultaneously to give his attention to several subjects. He lives in the New World,

The only claim of this book is to put at everyone's disposal an ensemble of scientific data concerning the human beings of our time. We are beginning to realize the weakness of our civilization. Many want to shake off the dogmas imposed upon them by modern society. This book has been written for them, and also for those who are bold enough to understand the necessity, not only of mental, political, and social changes, but of the overthrow of industrial civilization and of the advent of another conception of human progress. This book is, therefore, dedicated to all whose everyday task is the rearing of children, the formation or the guidance of the individual; to school-teachers, hygienists, physicians, clergymen, social workers, professors, judges, army officers, engineers, economists, politicians, industrial leaders, etc; also to those who are interested in the mere knowledge of our body and our mind; in short, to every man and every woman. It is offered to all as a simple account of facts revealed about human beings by scientific observation.

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The sexual glands have other functions than that of impelling man to the gesture which, in primitive life, perpetuated the race. They also intensify all physiological, mental, and spiritual activities. No eunuch has ever become a great philosopher, a great scientist, or even a great criminal. Testicles and ovaries possess functions of overwhelming importance. They generate male or female cells. Simultaneously they secrete into the blood certain substances which impress the male or female characteristics on our tissues, humours, and consciousness, and give to all our functions their character of intensity. The testicle engenders audacity, violence, and brutality, the qualities distinguishing the fighting bull from the ox drawing the plough along the furrow. The ovary affects the organism of the woman in an analogous manner. But its action lasts only during a part of her life. At the menopause the gland atrophies somewhat. The shorter life of the ovaries gives the ageing woman great inferiority to man, whose testicles remain active until extreme old age.

The differences existing between man and woman do not come from the particular form of the sexual organs, the presence of the uterus, from gestation, or from the mode of education. They are of a more fundamental nature. They are caused by the very structure of the tissues and by the impregnation of the entire organism with specific chemical substances secreted by the ovary. Ignorance of these fundamental facts has led promoters of feminism to believe that both sexes should have the same education, the same powers and the same responsibilities. In reality woman differs profoundly from man. Every one of the cells of her body bears the mark of her sex. The same is true of her organs and, above all, of her nervous system. Physiological laws are as inexorable as those of the sidereal world. They cannot be replaced by human wishes. We are obliged to accept them

just as they are. Women should develop their aptitudes in accordance with their own nature, without trying to imitate the males. Their part in the progress of civilization is higher than that of men. They should not abandon their specific functions.

With regard to the propagation of the race, the importance of the two sexes is unequal. Testicle cells unceasingly produce, during the entire course of life, animalcules endowed with very active movements, the spermatozoa. These spermatozoa swim in the mucus covering the vagina and uterus, and meet the ovum at the surface of the uterine mucosa. The ovum results from the slow ripening of the germinal cells of the ovary. In the ovary of a young woman there are about three hundred thousand ova. About four hundred of them reach maturity. At the time of menstruation the cyst containing the ovum bursts. Then the ovum is projected upon the membrane of the Fallopian tube and is transported by the vibrating cilia of this membrane into the uterus. Its nucleus has already undergone an important change. It has ejected half of its substance—that is, half of each chromosome. A spermatozoon then penetrates its surface. And its chromosomes, which have also lost half of their substance, unite with those of the ovum. A human being is born. He is composed of a single cell, grafted on the uterine mucosa. This cell separates into two parts and the development of the embryo begins.

The father and the mother contribute in equal proportions to the formation of the nucleus of the ovum, which engenders every cell of the new organism. But the mother gives also, in addition to half its nuclear substance, all the protoplasm surrounding the nucleus. She thus plays a more important part in the genesis of the embryo than the father does. Indeed, parental characteristics are transmitted to the offspring by the nucleus. But the remaining part of the cell also has some influence. The laws of heredity and the present theories of the geneticists do not entirely elucidate these complex pheno-

mena. When discussing the relative importance of the father and the mother in reproduction, we should never forget the experiments of Bataillon and of Jacques Loeb. From an unfertilized egg, and without the intervention of the male element, a normal frog was obtained through an appropriate technique. The spermatozoon can be replaced by a chemical or physical agent. Only the female element is essential.

PSEUDOSCIENCE!

Man's part in reproduction is short. That of the woman lasts nine months. During this time the foetus is nourished by chemicals which filter from the maternal blood through the membranes of the placenta. While the mother supplies her child with the elements from which its tissues are constructed, she receives certain substances secreted by the embryonic organs. Such substances may be beneficial or dangerous. The foetus, in fact, originates almost as much from the father as from the mother. Therefore, a being of partly foreign origin has taken up its abode in the woman's body. The latter is subjected to its influence during the entire pregnancy. In some instances she may be poisoned by her child. Her physiological and psychological conditions are always modified by it. But females, at any rate among mammals, seem only to attain their full development after one or more pregnancies. Women who have no children are not so well balanced and become more nervous than the others. In short, the presence of the foetus, whose tissues greatly differ from hers because they are young and are, in part, those of her husband, acts profoundly on the woman. The importance to her of the generative function has not been sufficiently recognized. Such function is indispensable to her optimum development. It is, therefore, absurd to turn women against maternity. The same intellectual and physical training, and the same ambitions, should not be given to young girls as to boys. Educators should pay very close attention to the organic and mental peculiarities of the male and the female and to their natural functions. Between the two sexes there are

ing. We may be led by it to our goal when we do not know how to attain this goal and even where it is located. This mode of knowledge is closely analogous to clairvoyance, to the sixth sense of Charles Richet. *ROBBISHI*

Clairvoyance and telepathy are a primary datum of scientific observation.* Those endowed with this power grasp the secret thoughts of other individuals without using their sense organs. They also perceive events more or less remote in space and time. This quality is exceptional. It develops in only a small number of human beings. But many possess it in a rudimentary state. They use it without effort and in a spontaneous fashion. Clairvoyance appears quite commonplace to those having it. It brings to them a knowledge which is more certain than that gained through the sense organs. A clairvoyant reads the thoughts of other people as easily as he examines the expression of their faces. But the words to see and to feel do not accurately express the phenomena taking place in his consciousness. He does not observe, he does not think. He knows. The reading of thoughts seems to be related simultaneously to scientific, æsthetic, and religious in-

* The existence of telepathic phenomena, as well as other metapsychic phenomena, is not accepted by most biologists and physicians. The attitude of these scientists should not be blamed. For these phenomena are exceptional and elusive. They cannot be reproduced at will. Besides they are hidden in the enormous mass of the superstitions, lies, and illusions accumulated for centuries by mankind. Although they have been mentioned in every country and at every epoch, they have not been investigated scientifically. It is, nevertheless, a fact that they are a normal, although rare, activity of the human being. The author began their study when he was a young medical student. He was interested in this subject in the same manner as in physiology, chemistry, and pathology. He realized long ago the deficiencies of the methods used by the specialists of psychical research, of the séances where professional mediums often utilize the amateurism of the experimenters. He has made his own observations and experiments. He has used in this chapter the knowledge that he has acquired himself, and not the opinion of others. The study of metapsychics does not differ from that of psychology and physiology. Scientists should not be alarmed by its unorthodox appearance. Several attempts, as is well known, have already been

spiration, and to telepathy. Telepathic communications occur frequently. In many instances, at the time of death or of great danger, an individual is brought into a certain kind of relation with another. The dying man, or the victim of an accident, even when such accident is not followed by death, appears to a friend in his usual aspect. The phantom generally remains silent. Sometimes he speaks and announces his death. The clairvoyant may also perceive at a great distance a scene, an individual, a landscape, which he is capable of describing minutely and exactly. There are many forms of telepathy. A number of persons, although not endowed with the gift of clairvoyance, have received, once or twice in their lifetime, a telepathic communication.

Thus knowledge of the external world may come to man through other channels than sense organs. It is certain that thought may be transmitted from one individual to another, even if they are separated by long distance. These facts, which belong to the new science of metapsychics, must be accepted just as they are. They constitute a part of the reality. They express a rare and almost unknown aspect of ourselves. They are possibly responsible for the uncanny mental acuteness observed in certain individuals. What extraordinary

made to apply scientific techniques to clairvoyance and telepathy, and have met with moderate success. The Society for Psychical Research was founded in London in 1882, under the presidency of Henry Sidgwick, Professor of Moral Philosophy at the University of Cambridge. In 1919, an International Institute of Metapsychics was established in Paris with the approval of the French Government, and under the auspices of the great physiologist, Richet, the discoverer of anaphylaxis, and of a learned physician, Joseph Teissier, Professor of Medicine at the University of Lyons. Among the members of its Committee of Administration are a professor at the Medical School of the University of Paris, and several physicians. Its president, Charles Richet, has written a treatise on Metapsychics. The Institute publishes the *Revue Métapsychique*. In the United States this branch of human psychology has hardly attracted the attention of the scientific institutions. However, the Department of Psychology of Duke University has undertaken some valuable metaphysical researches under the direction of Dr. J. B. Rhine.

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Man adapts himself to social environment as to physical environment. Mental activities, like physiological activities, tend to become modified in the way best suited to the survival of the body. They determine our adjustment to our surroundings. The individual does not generally get without effort the position he covets in the group of which he is a member. He wants wealth, knowledge, power, pleasures. He is driven by his greed, his ambition, his curiosity, his sexual appetite. But he finds himself in an environment always indifferent, sometimes hostile. He quickly realizes that he must fight for what he wants. His mode of reaction to his social surroundings depends on his specific constitution. Some people become accommodated to the world by conquering it, others by escaping from it. Still others refuse to accept its rules. The natural attitude of the individual toward his fellow men is one of strife. Consciousness responds to the enmity of the environment by an effort directed against it. Intelligence and cunning then develop, as well as the desire to learn, the will to work, to possess, and to dominate. The passion for conquest assumes diverse aspects according to individuals and circumstances. It inspires all great adventures. Such passion led Pasteur to the renovation of medicine, Mussolini to the building up of a great nation, Einstein to the creation of a universe. The same spirit drives the modern human being to robbery, to murder, and to the great financial and economic enterprises characterizing our civilization. But its impulse also builds hospitals, laboratories, universities, and churches. It impels men to fortune and to death, to heroism and to crime; but never to happiness. //

The second mode of adaptation is flight. Some abandon the struggle and descend to a social level where competition is no longer necessary. They become factory workers, proletarians. Others take refuge within their own self. At the same time they can adapt themselves, in some measure, to

the social group, and even conquer it through the superiority of their intelligence. But they do not fight. They are members of the community only in appearance. In fact, they live in an inner world of their own. Still others forget their surroundings in ceaseless toil. Those who are obliged to work uninterruptedly accommodate themselves to all events. A woman whose child dies, and who has to look after several other children, has no time to brood over her grief. Work is more effective than alcohol and morphine in helping people to bear adverse conditions. Certain individuals spend their lives in dreaming, in hoping for fortune, health, and happiness. Illusions and hope are also a powerful means of adaptation. Hope generates action. It is rightly looked upon by Christian morals as a great virtue. It contributes in a powerful manner to the adjustment of the individual to unfavourable circumstances. Habit is another aspect of adaptation. Sorrows are more quickly forgotten than joys. But inaction augments all sufferings.

Many people never adjust themselves to the social group. Among those unadapted are the feeble-minded. Except in special institutions they have no place in modern society. A number of normal children are born in the families of degenerates and criminals. In such a mould they shape their body and their consciousness. They become unadaptable to normal life. They supply the prisons with most of their inmates. They also constitute the far larger population that remains free to live by burglary and murder. These human beings are the fatal result of physiological and moral degradation brought about by industrial civilization. They are irresponsible. Irresponsible, also, is the youth brought up in modern schools by teachers ignorant of the necessity for effort, for intellectual concentration, for moral discipline. Later on in life, when these young men and women encounter the indifference of the world, the material and mental difficulties of existence, they are incapable of adaptation, save by asking for relief, for protection, for doles, and, if re-

Modern society ignores the individual. It only takes account of human beings. It believes in the reality of the Universals and treats men as abstractions. The confusion of the concepts of individual and of human being has led industrial civilization to a fundamental error, the standardization of men. If we were all identical, we could be reared and made to live and work in great herds like cattle. But each one has his own personality. He cannot be treated like a symbol. Children should not be placed, at a very early age, in schools where they are educated wholesale. As is well known, most great men have been brought up in comparative solitude, or have refused to enter the mould of the school. Of course, schools are indispensable for technical studies. They also fill, in a certain measure, the child's need of contact with other children. But education should be the object of unfailing guidance. Such guidance belongs to the parents. They alone, and more especially the mother, have observed, since their origin, the physiological and mental peculiarities whose orientation is the aim of education. Modern society has committed a serious mistake by entirely substituting the school for the familial training. The mothers abandon their children to the kindergarten in order to attend to their careers, their social ambitions, their sexual pleasures, their literary or artistic fancies, or simply to play bridge, go to the cinema, and waste their time in busy idleness. They are, thus, responsible for the disappearance of the familial group where the child was kept in contact with adults and learned a great deal from them. Young dogs brought up in kennels with others of the same age do not develop as well as puppies free to run about with their parents. It is the same with children living in a crowd of other children, and with those living in the company of intelligent adults. The child easily moulds his physiological, affective, and mental activities upon those of his surroundings. He learns little from children of his own

age. When he is only a unit in a school he remains incomplete. In order to reach his full strength, the individual requires the relative isolation and the attention of the restricted social group consisting of the family.

The neglect of individuality by our social institutions is, likewise, responsible for the atrophy of the adults. Man does not stand, without damage, the mode of existence and the uniform and stupid work imposed on factory and office workers, on all those who take part in mass production. In the immensity of modern cities he is isolated and as if lost. He is an economic abstraction, a unit of the herd. He gives up his individuality. He has neither responsibility nor dignity. Above the multitude stand out the rich men, the powerful politicians, the bandits. The others are only nameless grains of dust. On the contrary, the individual remains a man when he belongs to a small group, when he inhabits a village or a small town where his relative importance is greater, when he can hope to become, in his turn, an influential citizen. The contempt for individuality has brought about its factual disappearance.

Another error, due to the confusion of the concepts of human being and individual, is democratic equality. This dogma is now breaking down under the blows of the experience of the nations. It is, therefore, unnecessary to insist upon its falseness. But its success has been astonishingly long. How could humanity accept such faith for so many years? The democratic creed does not take account of the constitution of our body and of our consciousness. It does not apply to the concrete fact which the individual is. Indeed, human beings are equal. But individuals are not. The equality of their rights is an illusion. The feeble-minded and the man of genius should not be equal before the law. The stupid, the unintelligent, those who are dispersed, incapable of attention, of effort, have no right to a higher education. It is absurd to give them the same electoral power as the fully developed individuals. Sexes are not equal. To disregard all

these inequalities is very dangerous. The democratic principle has contributed to the collapse of civilization in opposing the development of an élite. It is obvious that, on the contrary, individual inequalities must be respected. In modern society the great, the small, the average, and the mediocre are needed. But we should not attempt to develop the higher types by the same procedures as the lower. The standardization of men by the democratic ideal has already determined the predominance of the weak. Everywhere the weak are preferred to the strong. They are aided and protected, often admired. Like the invalid, the criminal, and the insane, they attract the sympathy of the public. The myth of equality, the love of the symbol, the contempt for the concrete fact, are in a large measure guilty of the collapse of individuality. As it was impossible to raise the inferior types, the only means of producing democratic equality among men was to bring all to the lowest level. Thus vanished personality. — EVIL WRITING + NAZISM!

Not only has the concept of the individual been confused with that of the human being, but the latter has been adulterated by the introduction of foreign elements, and deprived of certain of its own elements. We have applied to man concepts belonging to the mechanical world. We have neglected thought, moral suffering, sacrifice, beauty, and peace. We have treated the individual as a chemical substance, a machine, or a part of a machine. We have amputated his moral, æsthetic, and religious functions. We have also ignored certain aspects of his physiological activities. We have not asked how tissues and consciousness would accommodate themselves to the changes in the mode of life imposed upon us. We have totally forgotten the important rôle of the adaptive functions and the momentous consequences of their enforced rest. Our present weakness comes both from our unappreciation of individuality and from our ignorance of the constitution of the human being.

of educators. It is essential that the individual, from infancy, be liberated from the dogmas of industrial civilization and the principles which are the very basis of modern society. The science of the human being does not need costly and numerous organizations in order to start its constructive work. It can utilize those already existing, provided they are rejuvenated. The success of such an enterprise will depend, in certain countries, on the attitude of the Government and, in others, on that of the public. In Italy, Germany, or Russia, if the dictator judged it useful to condition children according to a definite type, to modify adults and their ways of life in a definite manner, appropriate institutions would spring up at once. In democratic countries progress has to come from private initiative. When the failure of most of our educational, medical, economic, and social beliefs becomes more apparent, the public will probably feel the necessity of a remedy for this situation. = DICTATORSHIP!!! ??

In the past, the efforts of isolated individuals have caused the ascent of religion, science, and education. The development of hygiene in the United States is entirely due to the inspiration of a few men. For instance, Hermann Biggs made New York one of the most healthful cities of the world. A group of unknown young men, under the guidance of Welch, founded the Johns Hopkins Medical School, and initiated the astonishing progress of pathology, surgery, and hygiene in the United States. When bacteriology sprang from Pasteur's brain, the Pasteur Institute was created in Paris by national subscription. The Rockefeller Institute for Medical Research was founded in New York by John D. Rockefeller, because the necessity for new discoveries in the domain of medicine had become evident to Welch, Theobald Smith, T. Mitchell Prudden, Simon Flexner, Christian Herter, and a few other scientists. In many American universities, research laboratories, destined to further the progress of physiology, immunology, chemistry, etc., were established and endowed by enlightened benefactors. The great Car-

negie and Rockefeller Foundations were inspired by more general ideas: to develop education, raise the scientific level of universities, promote peace among nations, prevent infectious diseases, improve the health and the welfare of everybody with the help of scientific methods. Those movements have always been started by the realization of a need, and the establishment of an institution responding to that need. The State did not help in their beginnings. But private institutions forced the progress of public institutions. In France, for example, bacteriology was at first taught exclusively at the Pasteur Institute. Later, chairs and laboratories of bacteriology were established in all state universities.

The institutions necessary for the rebuilding of man will probably develop in a similar manner. Some day, a school, a college, a university may understand the importance of the subject. Slight efforts in the right direction have already been made. For instance, Yale University has created an Institute for the study of human relations. The Macy Foundation was established for the development of integrative ideas concerning man, his health, and his education. Greater advance has been realized in Genoa by Nicola Pende in his Institute for the study of the human individual. Many American physicians begin to feel the necessity for a broader comprehension of man. However, this feeling has by no means been formulated as clearly here as in Italy. The already existing organizations have to undergo important changes in order to become fitted for the work of human renovation. They must, for instance, eliminate the remnants of the narrow mechanisticism of the last century, and understand the imperativeness of a clarification of the concepts used in biology, of a reintegration of the parts into the whole, and of the formation of true scholars, as well as of scientific workers. The direction of the institutions of learning, and of those which apply to man the results of the special sciences, from biological chemistry to political economy, should not be given to specialists, because specialists are exaggeratedly in-

Our social frame, our material and mental background, should be rebuilt. But society is not plastic. Its form cannot be changed in an instant. Nevertheless, the enterprise of our restoration must start immediately, in the present conditions of our existence. Each individual has the power to modify his way of life, to create around him an environment slightly different from that of the unthinking crowd. He is capable of isolating himself in some measure, of imposing upon himself certain physiological and mental disciplines, certain work, certain habits, of acquiring the mastery of his body and mind. But if he stands alone, he cannot indefinitely resist his material, mental, and economic environment. In order to combat this environment victoriously he must associate with others having the same purpose. Revolutions often start with small groups in which the new tendencies ferment and grow. During the eighteenth century such groups prepared the overthrow of absolute monarchy in France. The French Revolution was due to the encyclopædists far more than to the Jacobins. To-day, the principles of industrial civilization should be fought with the same relentless vigour as was the *ancien régime* by the encyclopædists. But the struggle will be harder because the mode of existence brought to us by technology is as pleasant as the habit of taking alcohol, opium, or cocaine. The few individuals who are animated by the spirit of revolt might organize in secret groups. At present the protection of children is almost impossible. The influence of the school, private as well as public, cannot be counterbalanced. The young who have been freed by intelligent parents from the usual medical, pedagogical, and social superstitions, relapse through the example of their comrades. All are obliged to conform to the habits of the herd. The renovation of the individual demands his affiliation with a group sufficiently numerous to separate from others and to possess its own schools. Under the impulse of the centres of new thought, some universities may perhaps be led to abandon the classi-

cal forms of education and prepare youth for the life of tomorrow with the help of disciplines based on the true nature of man.

A group, although very small, is capable of eluding the harmful influence of the society of its epoch by imposing upon its members rules of conduct modelled on military or monastic discipline. Such a method is far from being new. Humanity has already lived through periods when communities of men or women separated from others and adopted strict regulations, in order to attain their ideals. Such groups were responsible for the development of our civilization during the Middle Ages. There were the monastic orders, the orders of chivalry, and the corporations of artisans. Among the religious organizations, some took refuge in monasteries, while others remained in the world. But all submitted to strict physiological and mental discipline. The knights complied with rules varying according to the aims of the different orders. In certain circumstances they were obliged to sacrifice their lives. As for the artisans, their relations between themselves and with the public were determined by exacting legislation. Each corporation had its customs, its ceremonies, and its religious celebrations. In short, the members of these communities renounced the ordinary forms of existence. Are we not capable of repeating, in a different form, the accomplishments of the monks, the knights, and the artisans of the Middle Ages? Two essential conditions for the progress of the individual are relative isolation and discipline. Each individual, even in the new city, can submit himself to these conditions. One has the power of refusing to go to certain plays or cinemas, to send one's children to certain schools, to listen to radio programmes, to read certain newspapers, certain books, etc. But it is chiefly through intellectual and moral discipline, and the rejection of the habits of the herd, that we can reconstruct ourselves. Sufficiently large groups could lead a still more personal life. The Doukhobors of Canada

have demonstrated that those whose will is strong can secure complete independence, even in the midst of modern civilization.

The dissenting groups would not need to be very numerous to bring about profound changes in modern society. It is a well-established fact that discipline gives great strength to men. An ascetic and mystic minority would rapidly acquire an irresistible power over the dissolute and degraded majority. Such a minority would be in a position to impose, by persuasion or perhaps by force, other ways of life upon the majority. None of the dogmas of modern society are immutable. Gigantic factories, office buildings rising to the sky, inhuman cities, industrial morals, faith in mass production, are not indispensable to civilization. Other modes of existence and of thought are possible. Culture without comfort, beauty without luxury, machines without enslaving factories, science without the worship of matter, would restore to man his intelligence, his moral sense, his virility, and lead him to the summit of his development. =MADNESS!!!

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A choice must be made among the multitude of civilized human beings. We have mentioned that natural selection has not played its part for a long while; that many inferior individuals have been conserved through the efforts of hygiene and medicine. But we cannot prevent the reproduction of the weak when they are neither insane nor criminal, or destroy sickly or defective children as we do the weaklings in a litter of puppies. The only way to obviate the disastrous predominance of the weak is to develop the strong. Our efforts to render normal the unfit are evidently useless. We should, then, turn our attention toward promoting the optimum growth of the fit. By making the strong still stronger, we could effectively help the weak. For the herd

always profits by the ideas and inventions of the élite. Instead of levelling organic and mental inequalities, we should amplify them and construct greater men.

We must single out the children who are endowed with high potentialities, and develop them as completely as possible, and in this manner give to the nation a non-hereditary aristocracy. Such children may be found in all classes of society, although distinguished men appear more frequently in distinguished families than in others. The descendants of the founders of American civilization may still possess the ancestral qualities. These qualities are generally hidden under the cloak of degeneration. But this degeneration is often superficial. It comes chiefly from education, idleness, lack of responsibility and moral discipline. The sons of very rich men, like those of criminals, should be removed while still infants from their natural surroundings. Thus separated from their family they could manifest their hereditary strength. In the aristocratic families of Europe there are also individuals of great vitality. The issue of the Crusaders is by no means extinct. The laws of genetics indicate the probability that the legendary audacity and love of adventure can appear again in the lineage of the feudal lords. It is possible also that the offspring of the great criminals who had imagination, courage, and judgment, of the heroes of the French or Russian Revolutions, of the high-handed business men who live among us, might be excellent building-stones for an enterprising minority. As we know, criminality is not hereditary if not united with feeble-mindedness or other mental or cerebral defects. High potentialities are rarely encountered in the sons of honest, intelligent, hard-working men who have had ill luck in their careers, who have failed in business or have muddled along all their lives in inferior positions, or among peasants living on the same spot for centuries. However, from such people sometimes spring artists, poets, adventurers, saints. A brilliantly gifted and well-known New York family came from peasants who

cultivated their farm in the south of France from the time of Charlemagne to that of Napoleon.

Boldness and strength suddenly appear in families where they have never before been observed. Mutations may occur in man, just as they do in other animals and in plants. Nevertheless, one should not expect to find among peasants and proletarians many subjects endowed with great developmental possibilities. In fact, the separation of the population of a free country into different classes is not due to chance or to social conventions. It rests on a solid biological basis, the physiological and mental peculiarities of the individuals. In democratic countries, such as the United States and France, for example, any man had the possibility during the last century of rising to the position his capacities enabled him to hold. To-day most of the members of the proletarian class owe their situation to the hereditary weakness of their organs and their mind. Likewise the peasants have remained attached to the soil since the Middle Ages, because they possess the courage, judgment, physical resistance, and lack of imagination and daring which render them apt for this type of life. These unknown farmers, anonymous soldiers, passionate lovers of the soil, the backbone of the European nations, were, despite their great qualities, of a weaker organic and psychological constitution than the mediæval barons who conquered the land and defended it victoriously against all invaders. Originally the serfs and the chiefs were really born serfs and chiefs. To-day the weak should not be artificially maintained in wealth and power. It is imperative that social classes should be synonymous with biological classes. Each individual must rise or sink to the level for which he is fitted by the quality of his tissues and of his soul. The social ascent of those who possess the best organs and the best minds should be aided. Each one must have his natural place. Modern nations will save themselves by developing the strong, not by protecting the weak. ← EVIL!

Eugenics is indispensable for the perpetuation of the strong. A great race must propagate its best elements. However, in the most highly civilized nations reproduction is decreasing and yields inferior products. Women voluntarily deteriorate through alcohol and tobacco. They subject themselves to dangerous dietary regimens in order to obtain a conventional slenderness of their figure. Besides, they refuse to bear children. Such a defection is due to their education, to the progress of feminism, to the growth of short-sighted selfishness. It also comes from economic conditions, nervous unbalance, instability of marriage, and fear of the burden imposed upon parents by the weakness or precocious corruption of children. The women belonging to the oldest stock, whose children would, in all probability, be of good quality, and who are in a position to bring them up intelligently, are almost sterile. It is the newcomers, peasants and proletarians from primitive European countries, who beget large families. But their offspring are far from having the value of those who came from the first settlers of North America. There is no hope for an increase in the birth-rate before a revolution takes place in the habits of thinking and living, and a new ideal rises above the horizon.

Eugenics may exercise a great influence upon the destiny of the civilized races. Of course, the reproduction of human beings cannot be regulated as in animals. The propagation of the insane and the feeble-minded, nevertheless, must be prevented. A medical examination should perhaps be imposed on people about to marry, as for admission into the army or the navy, or for employees in hotels, hospitals, and department stores. However, the security given by medical examination is not at all positive. The contradictory statements made by experts before the courts of justice demonstrate that these examinations often lack any value. It seems that eugenics, to be useful, should be voluntary. By an ap-

A man's value depends on his capacity to face adverse situations rapidly and without effort. Such alertness is attained by building up many kinds of reflexes and instinctive reactions. The younger the individual, the easier is the establishment of reflexes. A child can accumulate vast treasures of unconscious knowledge. He is easily trained, incomparably more so than the most intelligent shepherd dog. He can be taught to run without tiring, to fall like a cat, to climb, to swim, to stand and walk harmoniously, to observe everything exactly, to wake quickly and completely, to speak several languages, to obey, to attack, to defend himself, to use his hands dexterously in various kinds of work, etc. Moral habits are created in an identical manner. Dogs themselves learn not to steal. Honesty, sincerity, and courage are developed by the same procedures as those used in the formation of reflexes—that is, without argument, without discussion, without explanation. In a word, children must be conditioned.

Conditioning, according to the terminology of Pavlov, is nothing but the establishment of associated reflexes. It repeats in a scientific and modern form the procedures employed for a long time by animal trainers. In the construction of these reflexes, a relation is established between an unpleasant thing and a thing desired by the subject. The ringing of a bell, the report of a gun, even the crack of a whip, become for a dog the equivalent of the food he likes. A similar phenomenon takes place in man. One does not suffer from being deprived of food and sleep in the course of an expedition into an unknown country. Physical pain and hardship are easily supported if they accompany the success of a cherished enterprise. Death itself may smile when it is associated with some great adventure, with the beauty of sacrifice, or with the illumination of the soul that becomes immersed in God.

The psychological factors of development have a mighty influence on the individual, as is well known. They can be used at will for giving both to the body and to the mind their ultimate shape. We have mentioned how, by constructing proper reflexes in a child, one may prepare that child to face certain situations advantageously. The individual who possesses many acquired, or conditioned, reflexes reacts successfully to a number of foreseen stimuli. For instance, if attacked, he can instantaneously draw his pistol. But he is not prepared to respond properly to unforeseen stimuli, to unpredictable circumstances. The aptitude for improvising a fitting response to all situations depends on precise qualities of the nervous system, the organs, and the mind. These qualities can be developed by definite psychological agencies. We know that mental and moral disciplines, for instance, bring about a better equilibrium of the sympathetic system, a more complete integration of all organic and mental activities. These agencies can be divided into two classes: those acting from without, and those acting from within. To the first class belong all reflexes and states of consciousness imposed on the subject by other individuals or by his social environment. Insecurity or security, poverty or wealth, effort, struggle, idleness, responsibility, create certain mental states capable of moulding human beings in an almost specific manner. The second class comprises the factors which modify the subject from within, such as meditation, concentration, will to power, asceticism, etc.

The use of mental factors in the making of man is delicate. We can, however, easily direct the intellectual shaping of a child. Proper teachers, suitable books, introduce into his inner world the ideas destined to influence the evolution of his tissues and his mind. We have already mentioned that the growth of other mental activities, such as moral, æsthetic, and religious senses, is independent of intelligence and for-

tive, the gentle, the weak, the lonely, those who love beauty, who look for other things than money, whose sensibility does not stand the struggle of modern life. In past centuries, the many who were too refined, or too incomplete, to fight with the rest were allowed the free development of their personality. Some lived within themselves. Others took refuge in monasteries, in charitable or contemplative orders, where they found poverty and hard work, but also dignity, beauty, and peace. Individuals of this type should be given, instead of the inimical conditions of modern society, an environment more appropriate to the growth and utilization of their specific qualities.

There remains the unsolved problem of the immense number of defectives and criminals. They are an enormous burden for the part of the population that has remained normal. As already pointed out, gigantic sums are now required to maintain prisons and insane asylums, and protect the public against gangsters and lunatics. Why do we preserve these useless and harmful beings? The abnormal prevent the development of the normal. This fact must be squarely faced. Why should society not dispose of the criminals and the insane in a more economical manner? We cannot go on trying to separate the responsible from the irresponsible, punish the guilty, spare those who, although having committed a crime, are thought to be morally innocent. We are not capable of judging men. However, the community must be protected against troublesome and dangerous elements. How can this be done? Certainly not by building larger and more comfortable prisons, just as real health will not be promoted by larger and more scientific hospitals. Criminality and insanity can be prevented only by a better knowledge of man, by eugenics, by changes in education and in social conditions. Meanwhile, criminals have to be dealt with effectively. Perhaps prisons should be abolished. They could be replaced by smaller and less expensive institutions. The conditioning of petty criminals with the whip, or some more scientific pro-

cedure, followed by a short stay in hospital, would probably suffice to ensure order. Those who have murdered, robbed while armed with automatic pistol or machine gun, kidnapped children, despoiled the poor of their savings, misled the public in important matters, should be humanely and economically disposed of in small euthanasic institutions supplied with proper gases. A similar treatment could be advantageously applied to the insane, guilty of criminal acts. Modern society should not hesitate to organize itself with reference to the normal individual. Philosophical systems and sentimental prejudices must give way before such a necessity. The development of human personality is the ultimate purpose of civilization.

13

The restoration of man to the harmony of his physiological and mental self will transform his universe. We should not forget that the universe modifies its aspects according to the conditions of our body; that it is nothing but the response of our nervous system, our sensory organs, and our techniques to an unknown and probably unknowable reality. That all our states of consciousness, all our dreams, those of the mathematicians as well as those of the lovers, are equally true. The electromagnetic waves, which express a sunset to the physicist, are no more objective than the brilliant colours perceived by the painter. The æsthetic feeling engendered by those colours, and the measurement of the length of their component light-waves, are two aspects of ourselves and have the same right to existence. Joy and sorrow are as important as planets and suns. But the world of Dante, Emerson, Bergson, or G. E. Hale is larger than that of Mr. Babbitt. The beauty of the universe will necessarily grow with the strength of our organic and psychological activities.

We must liberate man from the cosmos created by the

genius of physicists and astronomers, that cosmos in which, since the Renaissance, he has been imprisoned. Despite its stupendous immensity, the world of matter is too narrow for him. Like his economic and social environment, it does not fit him. We cannot adhere to the faith in its exclusive reality. We know that we are not altogether comprised within its dimensions, that we extend somewhere else, outside the physical continuum. Man is simultaneously a material object, a living being, a focus of mental activities. His presence in the prodigious void of the intersidereal spaces is totally negligible. But he is not a stranger in the realm of inanimate matter. With the aid of mathematical abstractions his mind apprehends the electrons as well as the stars. He is made on the scale of the terrestrial mountains, oceans, and rivers. He appertains to the surface of the earth, exactly as trees, plants, and animals do. He feels at ease in their company. He is more intimately bound to the works of art, the monuments, the mechanical marvels of the new city, the small group of his friends, those whom he loves. But he also belongs to another world: a world which, although enclosed within himself, stretches beyond space and time. And of this world, if his will is indomitable, he may travel over the infinite cycles: the cycle of Beauty, contemplated by scientists, artists, and poets; the cycle of Love, that inspires heroism and renunciation; the cycle of Grace, ultimate reward of those who passionately seek the principle of all things. Such is our universe.

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The day has come to begin the work of our renovation. We will not establish any programme. For a programme would stifle living reality in a rigid armour. It would prevent the bursting forth of the unpredictable, and imprison the future within the limits of our mind.